ECO VINEYARDS
GROWING RESILIENCE NATURALLY

CASE STUDY

SEEDING PERENNIAL NATIVE INSECTARY GROUND COVERS IN THE UNDER-VINE AREA AND REHABILITATING A SALT SCALD AT ANGOVE FAMILY WINEMAKERS, RIVERLAND, SA

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Wine Australia

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INCORPORATING NATIVE INSECTARY GROUND COVERS

Background

The Nanya Vineyard located at 520 Murtho Road, Murtho consists of a total of 593 hectares with 257 planted to Cabernet Sauvignon, Chardonnay, Colombard, Gordo, Malbec, Merlot, Petit Verdot, Pinot Gris, Pinot Noir, Riesling, Sauvignon Blanc and Shiraz. The property is predominantly managed organically.

"The EcoVineyards program has been an excellent step in the right direction for our vineyards and the viticultural and wider agricultural community. Mary is a fountain of knowledge and is engaged and willing to share that knowledge for the betterment of the industry."

Sophie Angove, Angove Family Winemakers

Project description

Our project trialed hydroseeding of native grasses, as well as a range of forbs, in the undervine area to determine alternative ground covers that do not compete for nutrients and are able to outcompete weeds, improve soil structure and increase beneficial arthropods. We also planted tube stock *Atriplex semibaccata*, creeping saltbush undervine to compare success of tube stock to seed.

The lowest section of our vineyard also suffers from waterlogging and salinity issues. We planted a range of salt loving species in the cleared area to rehabilitate the soils and improve biodiversity in and around the vineyard.

Lastly, we attempted to sow native grass seeds in a perlite and sand mix in the midrow using our own seed spreader. This was trialed as using a sowing machine specifically designed for native grass is cost prohibitive, especially in the Riverland.

Undervine management, including weed control, soil health and water infiltration are significant factors that contribute to vine health in both organic and conventional farming.

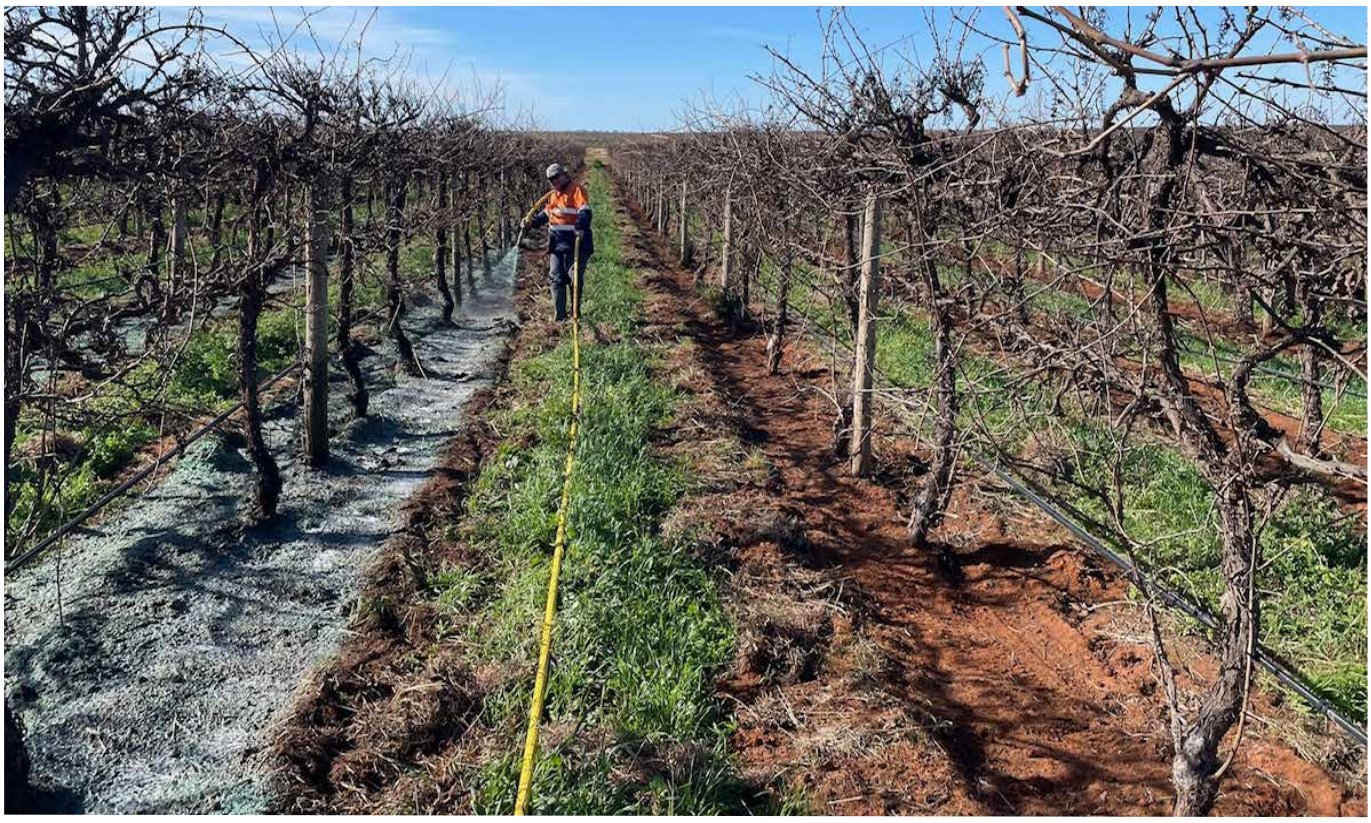


Figure 1: Hydroseeding undervine [Photo: Sophie Angove].

What did you do and when?

We joined the EcoVineyards program at the end of 2023. Consequently, our preparation was a little compressed and we began weed control in the undervine and midrow at the start of 2024.

Weed control was limited to cultivation only as we wanted to determine how successful the approaches would be in an organic vineyard.

We then hydroseeded undervine testing a range of forb and native grass seeds in the mix, planted creeping saltbush tubestock undervine, planted salt loving species in the low lying vineyard area and sowed the mid row grass seeds in July 2024.

What worked well?

The plants used in the rehabilitation of the salt scald low lying area of the vineyard are growing excellently. The range of saltbush species, pigface and sedges are all thriving in the area.

The native grasses in the hydroseeding have not germinated as well as expected, however the range of forb seeds spread at a relatively high density under the hydroseeding mix have germinated and grown well.

Species that grew outstandingly well include *Atriplex semibaccata*, creeping saltbush; *Disphyma crassifolium*, round-leaved pigface; *Dichondra repens*, tom thumb and *Rytidosperma geniculatum*, kneed wallaby grass.

What would you do differently?

Browsing by kangaroos and rabbits was feared in the salt scald. However, the guards restricted some plant growth and also caused some seedling death due to what looked like burning from high temperatures within the guards.

Guards need to only be applied to those plants that are likely to be browsed and need to be removed at optimum times.

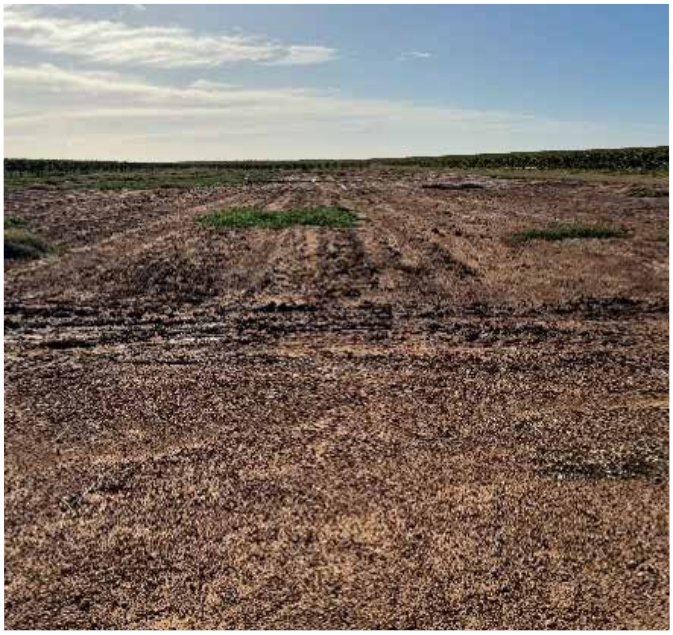


Figure 2: Salt scald before planting [Photo: Sophie Angove].

Figure 3: Salt scald after planting[Photo: Sophie Angove].

Figure 4: *Dichondra repens*, tom thumb germination undervine via hydroseeding taken 6 months after germination [Photo: Sophie Angove].

Figure 5: *Disphyma crassifolium*, round-leaved pigface germination undervine via hydroseeding taken 6 months after germination [Photo: Sophie Angove].

Figure 6: *Atriplex semibaccata*, creeping saltbush germination undervine via hydroseeding taken 6 months after germination [Photo: Sophie Angove].

Figure 7: *Rytidosperma geniculatum*, kneed wallaby grass germination undervine via hydroseeding taken 6 months after germination [Photo: Sophie Angove].

What would you do differently?

Weed control at optimum times would have helped hydroseeding and *A. semibaccata* tube stock however there was desire to try to replicate the treatment a whole block is likely to get once seedlings/seeds are planted/sown and it was decided that hand weeding was not an option in a scaled up implementation of undervine crops.

A well timed mow early in spring before the native plants started to germinate probably would have worked well at reducing competition for light from weedy species.

Highlights

The growth of *Atriplex semibaccata*, *Dichondra repens* and *Rytidosperma geniculatum* from seed was a definite highlight. The pigface grew well, however seemed to be browsed regularly.

What are you more aware of now

I am more aware of the range of different undervine crops that can be successful, however in some instances costs are prohibitive.

Where to from here?

We have purchased 22kg of *Dichondra repens* and plan to test its germination when spread undervine without hydroseeding, as hydroseeding is currently a little expensive.

We also plan to expand the plantings in the salt scald to rehabilitate the soil, use excessive soil moisture effectively and increase the ecosystem services occurring on farm.

I am also still hopeful that the midrow cover crop will germinate after some winter rain.

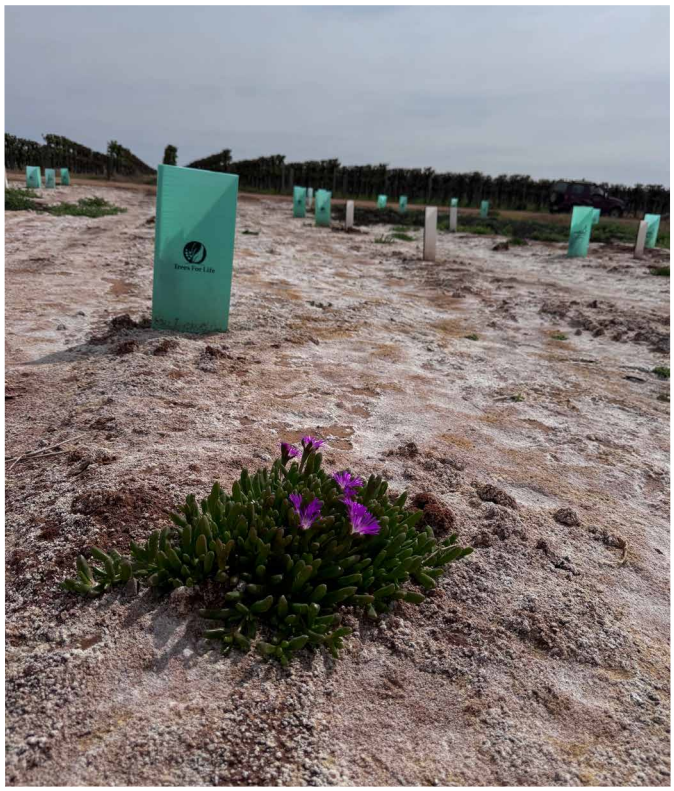


Figure 8: Salt scald plantings two months after planting [Photo: Sophie Angove].

Figure 9: Salt scald plantings nine months after planting [Photo: Sophie Angove].

Are there any knowledge gaps?

The lack of effective and long lasting organic weed control makes establishment of initially less competitive but better suited species difficult.

What have been the most valuable aspect of the program?

Getting Mary's guidance and attending the EcoVineyards Workshops have been extremely helpful.

Has the level of knowledge increased significantly since become an Ecogrower?

I have always had an interest in incorporating ecosystem services into the vineyard however I did not have the extensive knowledge of the range of approaches and processes that can be incorporated in the vineyard.

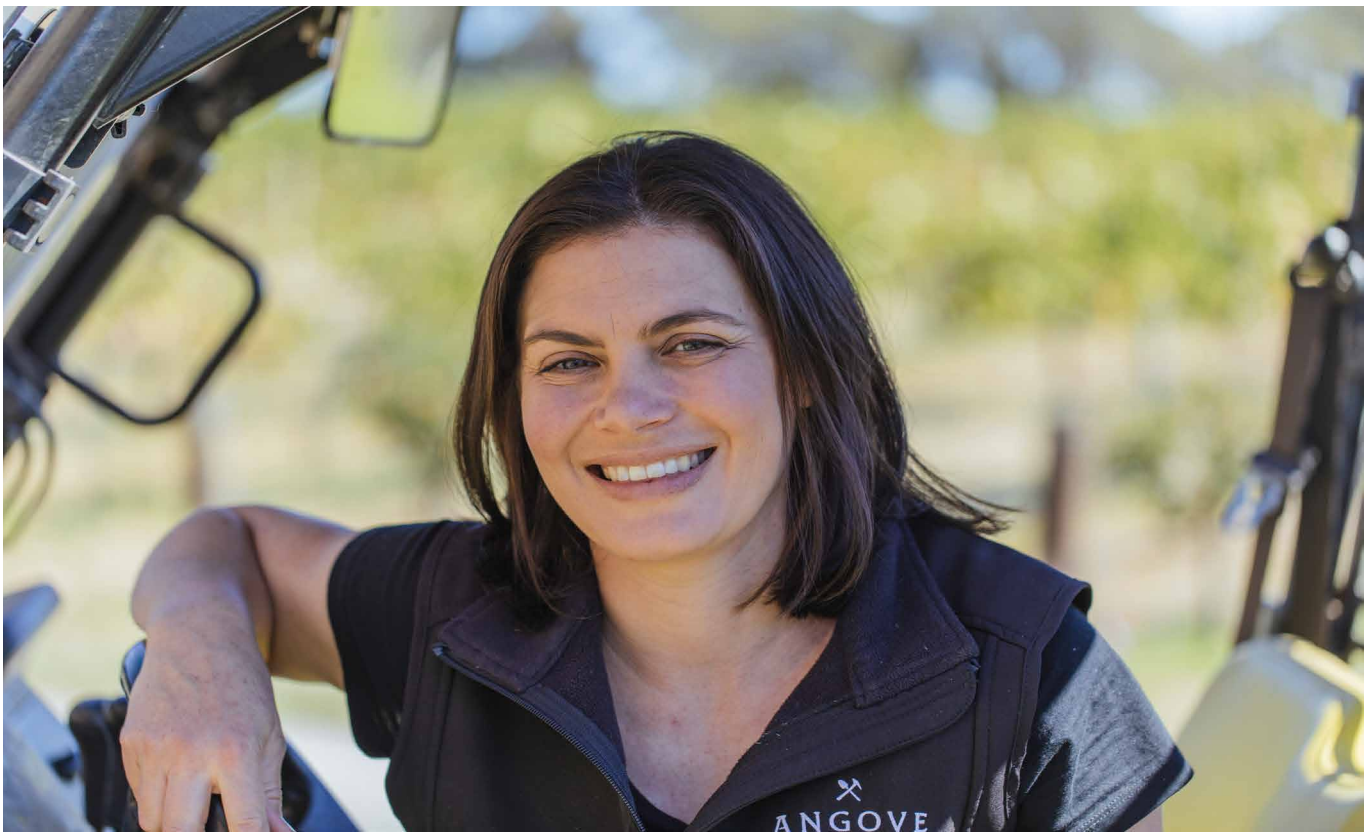
Being part of the EcoGrower program provided me with this information through workshops and direct feedback from Mary.

Plant lists

#	Scientific name	Common name	# planted
Species planted in the low lying area of the vineyard			
	Apium prostratum	sea celery	25
	Austrostipa ssp.	spear grass	25
	Atriplex nummularia	oldman saltbush	5
	Atriplex semibaccata	creeping saltbush	20
	Carpobrotus rossii	pig face	45
	Chenopodium parabolicum	fragrant saltbush	5
	Disphyma crassifolium	round leaf pigface	25
	Enchylaena tomentosa	ruby saltbush	75
	Juncus kraussii	sea rush	12
	Maireana rohrlachii	Rohrlach's bluebush	25
	Olearia pimeleoides	pimelea daisy-bush	25
Grasses sown in hydroseed mix			
	Microlaena stipoides	weeping grass (var. Burra)	1.25 kg
	Rytidosperma geniculatum	kneed wallaby grass	
	Rytidosperma setaceum	bristly wallaby grass	
Mid row cover crop			
	Rytidosperma caespitosum	Evans Wallaby grass	1 kg
	Rytidosperma ssp.	wallaby grass mitamo mix	
Tube stock planted undervine			
	Atriplex semibaccata	creeping saltbush	80
		Total	**367**

Expenses

Date	Item	Number of plants	EcoVineyards costs (ex GST)	Co-contribution (landholder contribution)	In-kind (time)
9/07/2024	Native Seeds custom mix		$392		
9/07/2024	Trees for Life	200	$545		
8/07/2024	Trees for life	167	$450		
8/07/2024	Hydroseeding by LCS Maintenance		$1,500		
16/04/2025	Advanced Seed DICHONDRA (Coated) 23kg		$1,153		
	EcoGrower contribution			$3,000	
	Total	**367**	**$4,040**	**$3,000**	**57 hours**



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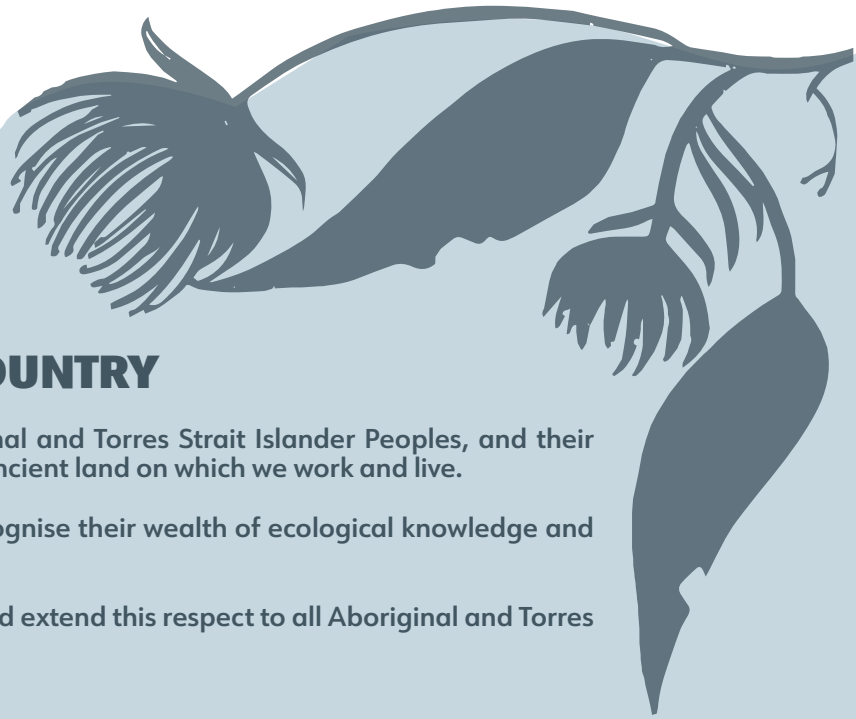

ACKNOWLEDGEMENT OF COUNTRY

EcoVineyards proudly acknowledges the Aboriginal and Torres Strait Islander Peoples, and their ongoing cultural and spiritual connection to this ancient land on which we work and live.

As the Traditional Custodians of this land, we recognise their wealth of ecological knowledge and the importance of caring for Country.

We pay our respects to elders past and present and extend this respect to all Aboriginal and Torres Strait Islander Peoples.


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